

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-051-01883 County MARSHALL District LIBERTY
Quad CAMERON 7 1/2' Pad Name GLADYS BRIGGS-MSH-PAD1 Field/Pool Name VICTORY FIELD
Farm name JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS Well Number GLADYS BRIGGS MSH 10H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY, LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,401,979.500 Easting 532,904.960
Landing Point of Curve Northing 4,402,085.936 Easting 533,224.007
Bottom Hole Northing 4,400,875.478 Easting 534,709.916

Elevation (ft) 1,382.2' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
SOBM

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Date permit issued 10/17/2016 Date drilling commenced 11/07/2016 Date drilling ceased 01/22/2017
Date completion activities began 04/03/2017 Date completion activities ceased 04/19/2017
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 733 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,221 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,100 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

NAME: Jim Underwood
DATE: 8/28/17

Reviewed by:

[Signature]
09/15/2017

API 47-051 - 01883

Farm name JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS

Well number GLADYS BRIGGS MSH 10H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	126	NEW	J-55/94#		Y
Surface	17.5	13.375	823	NEW	J-55/54.5#		Y; 92 BBLS RETURNED
Coal	SEE INTERMEDIATE						
Intermediate 1	12.25	9.625	2647	NEW	J-55/36#		Y; 50 BBLS RETURNED
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	14130	NEW	HCP-110/20#		Y
Tubing		2.375	7652	NEW	P-110/4.7#		N
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	Grout Cement				SURFACE	24
Surface	CLASS A	975	15.6	1.18	1150.5	SURFACE	8
Coal	SEE INTERMEDIATE						
Intermediate 1	CLASS A	1155	16	1.20	1386	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	960/1432	15.60	1.22/1.19	1171.2/1704.08	SURFACE	24
Tubing							

Drillers TD (ft) 14,130' Loggers TD (ft) 14,130'
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 6,381

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____ **JUL 12 2017**

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____
 WV Department of Environmental Protection

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

Well Name:

GLADYS BRIGGS MSH 10H

47051018830000

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	N/A	N/A	733.00	733.00	
Top of Salt Water	1221.00	1220.33	N/A	N/A	
Pittsburgh Coal	1100.00	1099.84	1109.00	1108.80	
Big Injun (ss)	2335.40	2332.00	2500.00	2496.00	
Berea (siltstone)	2848.00	2844.00	2894.00	2890.83	
Rhinestreet (shale)	6615.08	6492.33	6931.87	6781.39	
Cashaqua (shale)	6931.87	6781.39	7067.02	6888.61	
Middlesex (shale)	7067.02	6888.61	7212.34	6983.90	
Burket (shale)	7212.34	6983.90	7256.86	7008.36	
Tully (ls)	7256.86	7008.36	7300.31	7030.57	
Mahantango (shale)	7300.31	7030.57	7562.59	7134.27	
Marcellus (shale)	7562.59	7134.27	N/A	N/A	GAS

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GLADYS BRIGGS MSH 10H
PERF SUMMARY

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD	# SHOTS PER STG
1	3/31/2017	14,020	13,826	42
2	4/3/2017	13,764	13,570	42
3	4/3/2017	13,508	13,314	42
4	4/4/2017	13,252	13,058	42
5	4/4/2017	12,996	12,802	42
6	4/4/2017	12,740	12,546	42
7	4/5/2017	12,484	12,290	42
8	4/5/2017	12,228	12,034	42
9	4/5/2017	11,972	11,778	42
10	4/5/2017	11,716	11,522	42
11	4/5/2017	11,460	11,266	42
12	4/5/2017	11,204	11,010	42
13	4/6/2017	10,948	10,754	42
14	4/6/2017	10,692	10,498	42
15	4/6/2017	10,436	10,242	42
16	4/6/2017	10,180	9,986	42
17	4/6/2017	9,924	9,730	42
18	4/7/2017	9,668	9,474	42
19	4/7/2017	9,412	9,218	42
20	4/7/2017	9,156	8,962	42
21	4/8/2017	8,900	8,706	42
22	4/8/2017	8,644	8,450	42
23	4/8/2017	8,388	8,194	42
24	4/9/2017	8,132	7,938	42
25	4/9/2017	7,876	7,682	42

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GLADYS BRIGGS MSH 10H
FRAC STAGE SUMMARY

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/other
1	3/31/2017	81	8,365	8,754	4,514	490,800	8,618	
2	4/3/2017	81	8,160	8,553	4,550	499,360	7,484	
3	4/3/2017	86	8,378	8,691	4,829	501,900	7,225	
4	4/4/2017	85	8,316	8,851	4,830	490,780	7,387	
5	4/4/2017	85	8,351	8,799	4,894	491,200	7,507	
6	4/4/2017	85	8,203	8,623	4,377	496,560	8,623	
7	4/5/2017	87	8,303	8,698	4,911	495,100	7,287	
8	4/5/2017	86	8,454	8,866	4,286	500,400	7,352	
9	4/5/2017	94	8,338	8,638	4,760	492,100	7,204	
10	4/5/2017	96	8,343	8,597	4,748	491,820	7,119	
11	4/5/2017	91	8,090	8,430	4,382	491,500	7,103	
12	4/5/2017	91	8,104	8,582	4,621	495,820	7,137	
13	4/6/2017	93	8,276	8,572	4,890	492,440	7,347	
14	4/6/2017	96	8,215	8,594	5,131	497,600	6,947	
15	4/6/2017	100	8,134	8,584	5,005	492,000	6,934	
16	4/6/2017	97	8,047	8,451	5,035	494,340	6,955	
17	4/6/2017	91	7,911	8,456	4,847	491,980	6,958	
18	4/7/2017	96	7,933	8,337	5,007	502,140	7,274	
19	4/7/2017	100	8,239	8,751	4,943	494,060	6,926	
20	4/7/2017	99	8,246	8,649	5,378	493,100	6,820	
21	4/8/2017	100	8,034	8,347	4,590	495,340	6,899	
22	4/8/2017	98	8,145	8,512	4,803	496,200	7,117	
23	4/8/2017	99	7,979	8,342	4,968	489,160	7,351	
24	4/9/2017	99	7,708	8,141	5,164	497,340	6,964	
25	4/9/2017	99	7,826	8,332	5,364	493,260	6,148	

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/3/2017
Job End Date:	4/9/2017
State:	West Virginia
County:	Marshall
API Number:	47-051-01883-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Gladys Briggs 10H
Latitude:	39.76710700
Longitude:	-80.61581700
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,178
Total Base Water Volume (gal):	7,483,541
Total Base Non Water Volume:	0



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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	SWN	Carrier/Base Fluid	Water	7732-18-5	100.00000	82.34226	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	16.30531	None
Hydrochloric Acid (15%)	Keane	Acidizing	Water	7732-18-5	85.00000	1.05348	None
			Hydrochloric Acid	7647-01-0	15.00000	0.18591	None
KFR-17	Keane	Friction Reducer	Distillates (petroleum), hydrotreated light	64742-47-8	45.00000	0.04715	None
			ethanediol	107-21-1	10.00000	0.01048	None
			Fatty alcohols ethoxylated	Proprietary	2.00000	0.00210	None
			Alcohols, C12-16, ethoxylated	68213-24-1	2.00000	0.00210	None
KFEAC-30	Keane	Iron Control	acetic acid	64-19-7	60.00000	0.00313	None
			Citric acid	77-92-9	40.00000	0.00208	None
KAI-13	Keane	Acid Inhibitor	ethanediol	107-21-1	40.00000	0.00103	None

			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00052	None
			formic acid	64-18-6	10.00000	0.00026	None
			Ethoxylated alcohol	68131-39-5	10.00000	0.00026	None
			Cinnamaldehyde	104-55-2	10.00000	0.00026	None
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00026	None
			propan-2-ol	67-63-0	5.00000	0.00013	None
KFR-28	Keane	Friction Reducer					
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.00014	None
			Oxyalkylated alcohol	Proprietary	5.00000	0.00002	None
			ammonium chloride	12125-02-9	5.00000	0.00002	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	85.00000	1.05348	
			ethanediol	107-21-1	10.00000	0.01048	
			Fatty alcohols ethoxylated	Proprietary	2.00000	0.00210	
			Alcohols, C12-16, ethoxylated	68213-24-1	2.00000	0.00210	
			Citric acid	77-92-9	40.00000	0.00208	
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00052	
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00026	
			Cinnamaldehyde	104-55-2	10.00000	0.00026	
			formic acid	64-18-6	10.00000	0.00026	
			Ethoxylated alcohol	68131-39-5	10.00000	0.00026	
			propan-2-ol	67-63-0	5.00000	0.00013	
			ammonium chloride	12125-02-9	5.00000	0.00002	
			Oxyalkylated alcohol	Proprietary	5.00000	0.00002	
			Water	7732-18-5	92.50000		

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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SURFACE HOLE |----- 9.125'

9.125'

|----- 3223'

3223'

Latitude: 39°47'30" N

JACKSON SURVEYING INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5861

SURFACE HOLE LOCATION (SHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,401,979.471
EASTING: 532,904.931

LANDING POINT LOCATION (LPL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,402,117.234
EASTING: 533,185.902

BOTTOM HOLE LOCATION (BHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,400,872.746
EASTING: 534,709.219

GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- ALL WELLS WITHIN 500' OF THE HORIZONTAL LEG ARE SHOWN ON THIS MAP BASED UPON INFORMATION TAKEN FROM DEP MAPPING, WELL PLATS AND AERIAL PHOTOS.

LINE	BEARING	DISTANCE	DESCRIPTION
L1	S 63°25'43" W	716.78'	SHL TO CNR FP
L2	N 25°31'49" E	681.39'	SHL TO ROOFBOLT
L3	N 1°33'03" E	103.45'	SHL TO LPL
L4	S 61°12'21" W	322.64'	SHL TO 12" TREE OF HEAVEN
L5	S 30°33'08" E	178.66'	SHL TO 18' LOCUST
L6	N 61°44'13" W	372.04'	SHL TO WATER RESERVOIR (SPRING)

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS (S)	7-16-02	121.43
2	JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS (S)	7-16-03	10.00
3	JOHN DEAN BRIGGS & PATTY KAY BRIGGS (S)	7-16-04	81.25
4	GEORGE R. CUMPTON & NANCY K. CUMPTON (S)	7-16-24	115.72
5	DELORSE A. HORNER (LIFE), DOROTHY S. PRICE MITCHELL, J. PRICE (S)	7-16-22	26.67
6	JOHN MATTHEW BUTLER (S)	7-16-39	43.56
7	VINCENT E. LEMASTER (S)	7-19-2D	14.73
8	ALAN UNDERDONK (S)	7-16-25.1	75.79

SURFACE HOLE LOCATION (SHL):

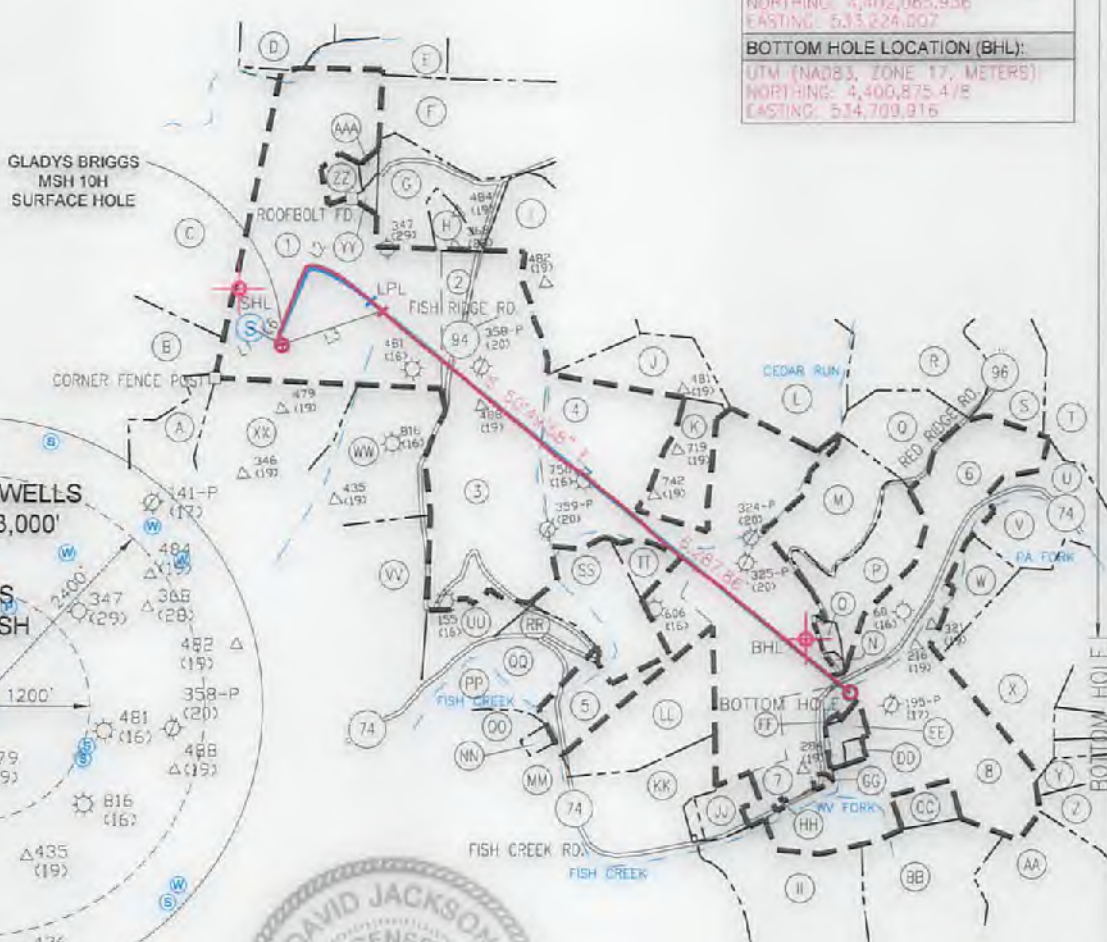
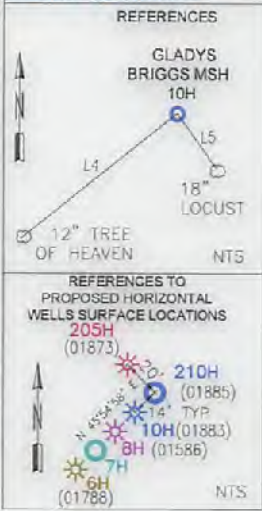
UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,401,979.500
EASTING: 532,904.950

LANDING POINT LOCATION (LPL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,402,065.936
EASTING: 533,224.902

BOTTOM HOLE LOCATION (BHL):

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,400,875.476
EASTING: 534,709.916



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 708 *David J. Jackson*



COMPANY: **SWN** Production Company, LLC

GLADYS BRIGGS MSH OPERATOR'S WELL #: 10H

API WELL #: 47 STATE COUNTY PERMIT 051 01883

	(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS	MINIMUM DEGREE OF ACCURACY: 1/200	GLADYS BRIGGS MSH		
	WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	PROVEN SURVEY SOURCE OF ELEVATION: GRADE GPS (NAVD 88, US FT)	OPERATOR'S WELL #: 10H		

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: FISH CREEK OF UPPER OHIO RIVER 2 ELEVATION: 1382.2'

DISTRICT: LIBERTY COUNTY: MARSHALL QUADRANGLE: CAMERON 7 1/2'

SURFACE OWNER: JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS ACREAGE: 121.43

OIL & GAS ROYALTY OWNER: DAVID BONAR; HARRISON J. BRIGGS & GLADYS R. BRIGGS ACREAGE: 121.43

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) ASDRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,191' TVD 14,322' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:	<ul style="list-style-type: none"> PROPOSED SURFACE HOLE / BOTTOM HOLE EXISTING / PRODUCING WELLHEAD LPL: LANDING POINT LOCATION EXISTING WATER WELL EXISTING SPRING 	<ul style="list-style-type: none"> SURVEYED BOUNDARY DRILLING UNIT LEASE BOUNDARY ASDRILLED PATH PROPOSED PATH 	REVISIONS: _____ DATE: 03-24-2017 DRAWN BY: N. MANO SCALE: 1" = 2000' DRAWING NO: WELL LOCATION PLAT
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JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-623-5851

ADJOINING OWNERS

TRACT	ADJOINING SURFACE OWNER (S)	TAX PARCEL	ACRES
A	MASON DIXON FARMS LLC (S)	07-17-19.1	20.00
B	MASON DIXON FARMS LLC (S)	07-17-19	22.80
C	MCELROY COAL COMPANY (S)	07-10-08	50.77
D	MARILYN V. CLARK (S)	07-10-11	25.00
E	JAMES M. CLARK (S)	07-10-09	15.00
F	VINCENT E. LEMASTERS (S)	07-10-24	44.08
G	PRESTON & HEATHER L. YEATER (S)	07-16-29.4	17.91
H	PRESTON A. YEATER ET UX (S)	07-16-29.2	4.92
I	THELMA YEATER (LIFE) (S)	07-16-29	40.41
J	RICHARD M. YEATER ET UX (S)	07-16-29.1	18.39
K	GEORGE R. CUMPSTON (S)	07-16-27	20.00
L	RUSSELL ALLEN JR. & JODI D. DOTSON (S)	07-16-28	69.12
M	JOHN M. BUTLER (S)	07-16-26.1	19.56
N	BEN F. ALLMAN & ELLEN ALLMAN (S)	07-16-25	0.72
O	DANNY ZIEGLER & MARK ROBERTS (S)	07-16-25.2	1.72
P	DAVID T. BUTLER (LIFE) REMAINDERMEN: JOHN BUTLER & BENJAMIN BUTLER (S)	07-16-26	26.34
Q	JEREMIAH N. & ANDREA J. MAGERS (S)	07-16-33.1	12.00
R	DONALD REX QUICLEY ET UX (S)	07-16-33	71.50
S	DAVID L. ELSON ET UX (S)	07-16-34	25.00
T	LAWRENCE WESLEY QUIGLEY ET UX (S)	07-16-36	146.78
U	LOUIS S. MCCLELLAND EST. (S)	07-16-37	13.74
V	JOHN E. RIGGS JR. (S)	07-16-41	10.00
W	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL (S)	07-16-40	10.52
X	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL (S)	07-20-06	52.00
Y	ANNIE L. GEHO EST. (S)	07-20-11	6.60
Z	AMMON BURLEY ET UX (S)	07-20-12	34.80
AA	WV WILDLIFE RES. SEC. (S)	07-24-01	1,842.26
BB	BRAD FROMHART ET UX (LIFE) (S)	07-20-41	57.00
CC	JAMES B. FROMHART (S)	07-20-01	7.50
DD	SUELLEN MARLING (S)	07-20-03	1.00
EE	JUDITH A. BURGE & VIRGINIA L. BAILEY (S)	07-20-04	3.52
FF	CHARLES E. CONNELLY (S)	07-20-05	0.25
GG	SHERRY L. JOHNSON ET VIR (S)	07-19-21	0.57
HH	CHARLES VUCELICK EST. (S)	07-19-22	0.20
II	PEGGY M. GRIBBEN (S)	07-19-28	112.16
JJ	JAMES F. & JAMIE ANN DRUSCHEL ET AL (S)	07-19-23	4.43
KK	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-26	28.34
LL	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-18	26.77
MM	STEVEN D. & SHERRI A. ZELIC (S)	07-19-16	1.00
NN	STEVEN D. & SHERRI A. ZELIC (S)	07-19-15	0.5
OO	JOHN C. & SONIA M. RICHARDS (S)	07-19-14	1.88
PP	JOHN C. & SONIA M. RICHARDS (S)	07-19-13	6.47
QQ	CHARLES E. HORNER ET UX. (LIFE)	07-19-23	16.71
RR	WILLIAM ZERVOS JR. (S)	07-16-21	3.00
SS	MICHAEL J. HORNER (S)	07-16-23.1	25.01
TT	CHARLES E. HORNER ET UX (LIFE) (S)	07-16-23	7.06
UU	CHARLES C. COOK ET UX (S)	07-16-09	11.21
VV	COLUMBIA GAS TRANSMISSION CORP. (S)	07-19-10	55.15
WW	JACK J. BRIGGS (S)	07-16-05	37.88
XX	MASON DIXON FARMS LLC (S)	07-16-06	69.72
YY	JOHN D. BRIGGS & PATTY K. BRIGGS (S)	07-16-02.2	1.03
ZZ	VINCENT E. LEMASTERS (S)	07-16-01	4.00
AAA	JACK BRIGGS (S)	07-16-02.1	1.02



09/15/2017

REVISIONS:	COMPANY:	SWN Production Company, LLC	SWN Production Company™
	OPERATOR'S	GLADYS BRIGGS MSH	
	WELL #:	10H	
	LOCATION:	LIBERTY DISTRICT, MARSHALL COUNTY, WEST VIRGINIA	
		DATE:	03-24-2017
		DRAWN BY:	N. MANO
		SCALE:	N/A
		DRAWING NO.:	
		ADJOINING OWNERS	

ADJOINING OWNERS

TRACT	ADJOINING SURFACE OWNER (S)	TAX PARCEL	ACRES
AAA	JACK BRIGGS (S)	07-18-02.1	1.02
ZZ	VINCENT E. LEMASTERS (S)	07-18-01	4.00
YY	JOHN D. BRIGGS & PATTY K. BRIGGS (S)	07-18-02.2	1.03
XX	MASON DIXON FARMS LLC (S)	07-18-08	69.72
WW	JACK J. BRIGGS (S)	07-18-08	37.88
VV	COLUMBIA GAS TRANSMISSION CORP. (S)	07-19-10	22.18
UU	CHARLES C. COOK ET UX (S)	07-18-09	11.21
TT	CHARLES E. HORNER ET UX (LIFE) (S)	07-18-23	7.08
SS	MICHAEL J. HORNER (S)	07-18-23.1	22.01
RR	WILLIAM ZERVOS JR. (S)	07-18-21	3.00
QQ	CHARLES E. HORNER ET UX. (LIFE)	07-18-23	18.71
PP	JOHN C. & SONIA M. RICHARDS (S)	07-19-13	6.47
OO	JOHN C. & SONIA M. RICHARDS (S)	07-19-14	1.88
NN	STEVEN D. & SHERRI A. ZELIC (S)	07-19-15	0.8
MM	STEVEN D. & SHERRI A. ZELIC (S)	07-19-16	1.00
LL	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-18	28.77
KK	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-25	28.34
JJ	JAMES F. & JAMIE ANN DRUSCHEL ET AL. (S)	07-19-23	4.43
II	PEGGY M. GRIBBIN (S)	07-19-28	112.16
HH	CHARLES VUCELICK EST. (S)	07-19-25	0.20
GG	SHERRY L. JOHNSON ET VIR (S)	07-19-21	0.27
FF	CHARLES E. CONNELLY (S)	07-20-05	0.25
EE	JUDITH A. BURGE & VIRGINIA L. BAILEY (S)	07-20-04	3.22
DD	SUELEEN MARLING (S)	07-20-03	1.00
CC	JAMES B. FROMMHAET (S)	07-20-01	2.20
BB	BRAD FROMMHAET ET UX (LIFE) (S)	07-20-41	27.00
AA	WV WILDLIFE RES. SEC. (S)	07-24-01	1,842.26
Z	AMMON BURLEY ET UX (S)	07-20-12	24.80
Y	ANNIE L. GEHO EST. (S)	07-20-11	6.60
X	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL. (S)	07-20-08	22.00
W	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL. (S)	07-18-40	10.22
V	JOHN E. RIGGS JR. (S)	07-18-41	10.00
U	LOUIS S. MCGLELAND EST. (S)	07-18-37	12.74
T	LAWRENCE WESLEY QUIGLEY ET UX (S)	07-18-36	148.78
S	DAVID L. ELSON ET UX (S)	07-18-24	22.00
R	DONALD REX QUIGLEY ET UX (S)	07-18-33	21.20
Q	JEREMIAH N. & ANDREA J. MAGERS (S)	07-18-33.1	12.00
P	BUTLER & BENJAMIN BUTLER (S)	07-18-26	26.24
O	DAVID T. BUTLER (LIFE) REMAINDERMEN: JOHN DANNY ZIEGLER & MARK ROBERTS (S)	07-18-26.2	1.72
N	BEN F. ALLMAN & ELLEN ALLMAN (S)	07-18-25	0.72
M	JOHN M. BUTLER (S)	07-18-28.1	19.26
L	RUSSELL ALLEN JR. & JODI D. DOTSON (S)	07-18-28	68.12
K	GEORGE R. CUMPTON (S)	07-18-27	20.00
J	RICHARD M. YEATER ET UX (S)	07-18-28.1	18.28
I	THELMA YEATER (LIFE) (S)	07-18-29	40.41
H	PRESTON A. YEATER ET UX (S)	07-18-28.2	4.92
G	PRESTON & HEATHER L. YEATER (S)	07-18-28.4	17.91
F	VINCENT E. LEMASTERS (S)	07-10-24	44.08
E	JAMES M. CLARK (S)	07-10-08	12.00
D	MARILYN V. CLARK (S)	07-10-11	22.00
C	MCELROY COAL COMPANY (S)	07-10-08	20.77
B	MASON DIXON FARMS LLC (S)	07-17-19	22.80
A	MASON DIXON FARMS LLC (S)	07-17-19.1	20.00

09/15/2017

REVISIONS:	COMPANY:		
OPERATOR'S	WELL #:	GLADYS BRIGGS MSH	10H
LOCATION:		LIBERTY DISTRICT,	
		MARSHALL COUNTY, WEST VIRGINIA	
		ADJOINING OWNERS	
		DRAWING NO:	N/A
		SCALE:	N/A
		DRAWN BY:	N. MANO
		DATE:	03-24-2017

SURFACE HOLE ← 9,128' →

Latitude: 39°47'30" N

→ 3223' → BOTTOM HOLE

JACKSON SURVEYING INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,401,979.471 EASTING: 532,904.931
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,402,117.234 EASTING: 533,185.902
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,872.746 EASTING: 534,709.219

GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

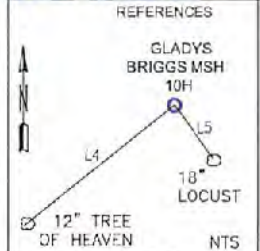
NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED OF CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- ALL WELLS WITHIN 500' OF THE HORIZONTAL LEG ARE SHOWN ON THIS MAP BASED UPON INFORMATION TAKEN FROM DEP MAPPING, WELL PLATS AND AERIAL PHOTOS.

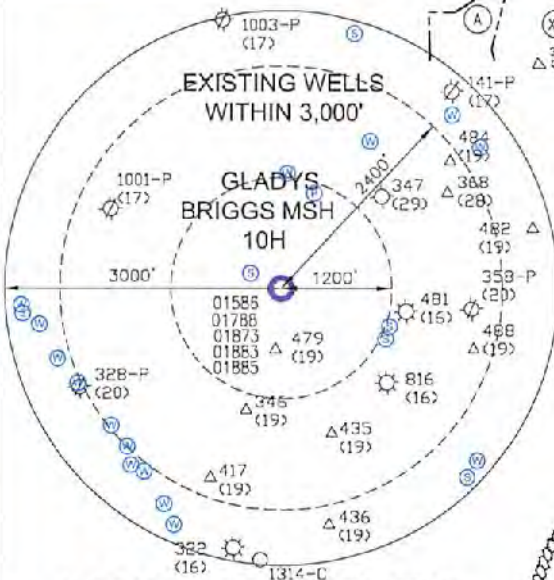
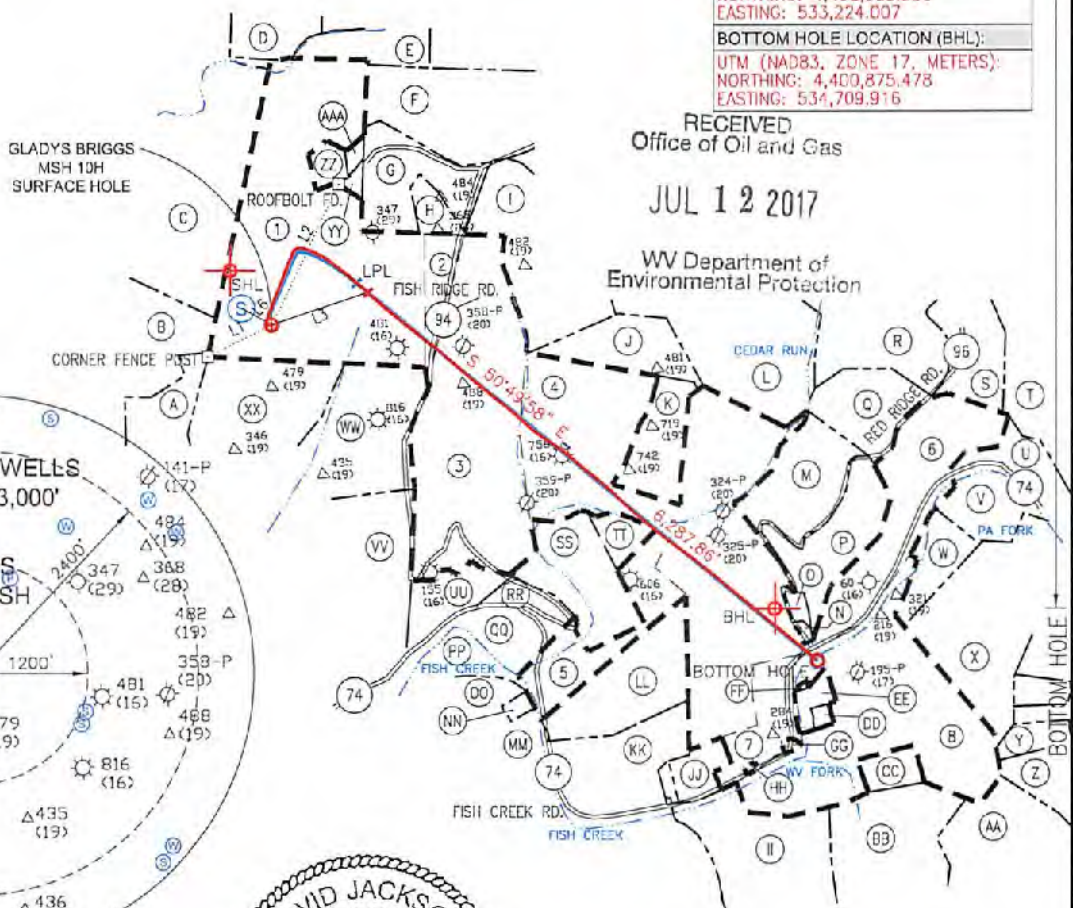
LINE	BEARING	DISTANCE	DESCRIPTION
L1	S 83°25'43" W	776.78'	SHL TO CNR FP
L2	N 29°31'49" E	1,881.39'	SHL TO ROOFBOLT
L3	N 71°33'03" E	1,103.45'	SHL TO LPL
L4	S 51°12'21" W	522.64'	SHL TO 12" TREE OF HEAVEN
L5	S 35°33'06" E	178.56'	SHL TO 18" LOCUST
L6	N 61°44'13" W	372.04'	SHL TO WATER RESERVOIR (SPRING)

TRACT	SURFACE OWNER (S)/ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS (S)	7-16-02	121.43
2	JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS (S)	7-16-03	10.00
3	JOHN DEAN BRIGGS & PATTY KAY BRIGGS (S)	7-16-04	81.25
4	GEORGE R. CLUMPTON & NANCY K. CLUMPTON (S)	7-16-24	115.72
5	DELORSE A. HORNER (LIFE), DOROTHY S. PRICE MITCHELL J. PRICE (S)	7-16-22	26.67
6	JOHN MATTHEW BUTLER (S)	7-16-39	43.56
7	VINCENT E. LEWASTER (S)	7-19-20	14.73
8	ALAN UNDERDUNK (S)	7-16-25.1	73.79

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,401,979.500 EASTING: 532,904.960
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,402,085.935 EASTING: 533,224.007
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,875.478 EASTING: 534,709.916

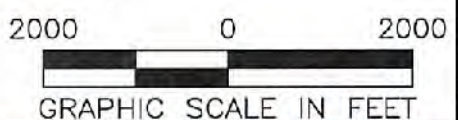


GLADYS BRIGGS MSH 10H SURFACE HOLE



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 708 *David L Jackson*



COMPANY: **SWN** Production Company, LLC

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: GLADYS BRIGGS MSH OPERATOR'S WELL #: 10H API WELL #: 47 STATE 051 COUNTY 01883 PERMIT
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WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> WATERSHED: FISH CREEK OF UPPER OHIO RIVER 2 DISTRICT: LIBERTY COUNTY: MARSHALL SURFACE OWNER: JAMES RODNEY BRIGGS, ROGER JACOB BRIGGS & JOHN DEAN BRIGGS OIL & GAS ROYALTY OWNER: DAVID BONAR; HARRISON J. BRIGGS & GLADYS R. BRIGGS DRILL <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/> CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) ASDRILLED TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,191' TYP	ELEVATION: 1382.2' QUADRANGLE: CAMERON 7 1/2' ACREAGE: 121.43 ACREAGE: 121.43
--	--

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378
--	--

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD LPL * LANDING POINT LOCATION ⊙ EXISTING WATER WELL ⊕ EXISTING SPRING	— SURVEYED BOUNDARY — DRILLING UNIT = LEASE BOUNDARY — ASDRILLED PATH — PROPOSED PATH	REVISIONS: DATE: 03-24-2017 DRAWN BY: N. MANO SCALE: 1" = 2000' DRAWING NO: WELL LOCATION PLAT
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JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-523-5851

ADJOINING OWNERS

TRACT	ADJOINING SURFACE OWNER (S)	TAX PARCEL	ACRES
A	MASON DIXON FARMS LLC (S)	07-17-19.1	20.00
B	MASON DIXON FARMS LLC (S)	07-17-19	22.80
C	MCELROY COAL COMPANY (S)	07-10-08	50.77
D	MARILYN V. CLARK (S)	07-10-11	25.00
E	JAMES M. CLARK (S)	07-10-09	15.00
F	VINCENT E. LEMASTERS (S)	07-10-24	44.08
G	PRESTON & HEATHER L. YEATER (S)	07-16-29.4	17.91
H	PRESTON A. YEATER ET UX (S)	07-16-29.2	4.92
I	THELMA YEATER (LIFE) (S)	07-16-29	40.41
J	RICHARD M. YEATER ET UX (S)	07-16-29.1	18.39
K	GEORGE R. CUMPSTON (S)	07-16-27	20.00
L	RUSSELL ALLEN JR. & JODI D. DOTSON (S)	07-16-28	89.12
M	JOHN M. BUTLER (S)	07-16-26.1	19.56
N	BEN F. ALLMAN & ELLEN ALLMAN (S)	07-16-25	0.72
O	DANNY ZIEGLER & MARK ROBERTS (S)	07-16-25.2	1.72
P	DAVID T. BUTLER (LIFE) REMAINDERMEN: JOHN BUTLER & BENJAMIN BUTLER (S)	07-16-26	26.34
Q	JEREMIAH N. & ANDREA J. MAGERS (S)	07-16-33.1	12.00
R	DONALD REX QUIGLEY ET UX (S)	07-16-33	71.50
S	DAVID L. ELSON ET UX (S)	07-16-34	25.00
T	LAWRENCE WESLEY QUIGLEY ET UX (S)	07-16-36	145.78
U	LOUIS S. MCCLELLAND EST. (S)	07-16-37	13.74
V	JOHN E. RIGGS JR. (S)	07-16-41	10.00
W	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL (S)	07-16-40	10.52
X	JUDITH A. BURGE & VIRGINIA L. BAILEY ET AL (S)	07-20-06	52.00
Y	ANNIE L. GEHO EST. (S)	07-20-11	6.60
Z	AMMON BURLEY ET UX (S)	07-20-12	34.80
AA	WV WILDLIFE RES. SEC. (S)	07-24-01	1,842.26
BB	BRAD FROMHART ET UX (LIFE) (S)	07-20-41	57.00
CC	JAMES B. FROMHART (S)	07-20-01	7.50
DD	SUELLEN MARLING (S)	07-20-03	1.00
EE	JUDITH A. BURGE & VIRGINIA L. BAILEY (S)	07-20-04	3.52
FF	CHARLES E. CONNELLY (S)	07-20-05	0.25
GG	SHERRY L. JOHNSON ET VIR (S)	07-19-21	0.57
HH	CHARLES VUCELICK EST. (S)	07-19-22	0.20
II	PEGGY M. GRIBBEN (S)	07-19-28	112.16
JJ	JAMES F. & JAMIE ANN DRUSCHEL ET AL (S)	07-19-23	4.43
KK	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-26	28.34
LL	CHARLES E. HORNER ET UX (LIFE) (S)	07-19-18	26.77
MM	STEVEN D. & SHERRI A. ZELIC (S)	07-19-16	1.00
NN	STEVEN D. & SHERRI A. ZELIC (S)	07-19-15	0.5
OO	JOHN C. & SONIA M. RICHARDS (S)	07-19-14	1.88
PP	JOHN C. & SONIA M. RICHARDS (S)	07-19-13	6.47
QQ	CHARLES E. HORNER ET UX. (LIFE)	07-19-23	16.71
RR	WILLIAM ZERVOS JR. (S)	07-16-21	3.00
SS	MICHAEL J. HORNER (S)	07-16-23.1	25.01
TT	CHARLES E. HORNER ET UX (LIFE) (S)	07-16-23	7.06
UU	CHARLES C. COOK ET UX (S)	07-16-09	11.21
VV	COLUMBIA GAS TRANSMISSION CORP. (S)	07-19-10	55.15
		07-16-08	
WW	JACK J. BRIGGS (S)	07-16-05	37.88
XX	MASON DIXON FARMS LLC (S)	07-16-06	69.72
YY	JOHN D. BRIGGS & PATTY K. BRIGGS (S)	07-16-02.2	1.03
ZZ	VINCENT E. LEMASTERS (S)	07-16-01	4.00
AAA	JACK BRIGGS (S)	07-16-02.1	1.02

RECEIVED
 Office of Oil and Gas

JUL 12 2017

WV Department of
 Environmental Protection

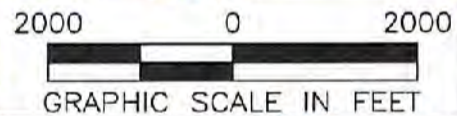
REVISIONS:	COMPANY:	SWN Production Company, LLC	SWN Production Company™	<i>Rev A</i> 09/15/2017
	OPERATOR'S	GLADYS BRIGGS MSH		DATE: 03-24-2017
	WELL #:	10H		DRAWN BY: N. MANO
	LOCATION:	LIBERTY DISTRICT, MARSHALL COUNTY, WEST VIRGINIA		SCALE: N/A
				DRAWING NO:
				ADJOINING OWNERS

JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-623-5851



RECEIVED
 Office of Oil and Gas
 JUL 12 2017
 WV Department of
 Environmental Protection

WELL: GLADYS BRIGGS MSH 10H
 QUAD: CAMERON 7 1/2 W



NAME AND DISTANCE TO THE NEAREST STREAM: FISH CREEK IS LOCATED ±0.49 MILES SW OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: 	
WELL RESTRICTIONS: WELL PAD, LDD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LDD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LDD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S GLADYS BRIGGS MSH		WELL #: 10H	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF MARSHALL COUNTY, WEST VIRGINIA; MAP NUMBER 54051C0200 E; EFFECTIVE DATE: SEPTEMBER 25, 2009.		LOCATION: LIBERTY DISTRICT, MARSHALL COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 39.757107° LONGITUDE: -80.615817°	
LEGEND: 		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 39.757088° LONGITUDE: -80.594802°		REVISIONS: DATE: 03-24-2017	
				DRAWN BY: N. MANO SCALE: 1" = 2000' DRAWING NO: TOPOGRAPHIC MAP	

09/15/2017

